

TECHNOLOGY ASSESSMENT BRIEF

Stereotactic Pallidotomy for Treatment of Parkinson's Disease Report #8

Contacts: Karen L. Flynn, DDS, MS, Elizabeth J. Adams, RRT, MPH, and Elaine C. Alligood, MLS

Report Date: February 1998

Primary Objective: To assess the effectiveness and appropriateness of stereotactic pallidotomy for the treatment of Parkinson's disease.

Methods Used: Systematic review of published research.

Background: Parkinson's disease (PD) is a degenerative disease of the nervous system that affects about one million Americans. PD is characterized by tremors and impaired posture, and advanced stage brings dementia and death. Pallidotomy, neurosurgical destruction of some or all of the part of the brain that controls fine motor movement (the globus pallidus), was used in the treatment of PD in the 1940s and 1950s. Largely abandoned in the 1960s with the advent of medical therapy, pallidotomy was re-introduced in a modified form to provide symptomatic relief to a new subset of aging PD patients in whom medical therapy either is no longer effective or causes disabling side effects. The new procedure, stereotactic pallidotomy, uses a radiofrequency electrode. While magnetic resonance imaging or computerized tomography is used to locate the precise target site, microelectrode recording (also called mapping) is sometimes employed with pallidotomy to improve the procedure's accuracy and safety.

Key Findings: The best available evidence from case series reports suggests that pallidotomy may alleviate PD drug-induced movement impairment and improve PD symptoms without mortality or significant complications. However, several issues remain unresolved in the existing research— such as the long term neurologic and psychologic effects; inconsistent relief of tremor; selecting the best candidates for surgery; the benefits and risks of microelectrode mapping; and comparing pallidotomy with other surgical techniques, such as pallidal stimulation, for treatment of some PD patients.

Conclusions/Recommendations: The report indicates that there is not enough evidence to conclude that the benefits of pallidotomy outweigh the risks for the patients reviewed in the literature. It recommends that, if a clinician decides pallidotomy is appropriate, pallidotomy should be performed in specialized centers with both neurological and neurosurgical expertise. The report also calls for improved systematic data collection at pallidotomy centers along with comparative studies of pallidotomy versus alternative treatments.

VHA's Office of Research and Development (ORD) is planning a large clinical trial that is expected to elicit important comparative information on the effectiveness, safety, and costs of pallidotomy versus pallidal stimulation in treating Parkinson's disease. ORD is also working toward developing a Parkinson's disease consortium to conduct clinical trials of neuro-protective agents and additional collaborations with the National Parkinson's Disease Foundation.